

Appl. No. 10/082,728  
Arndt, Dated August 31, 2005  
Reply to Office Action of May 31, 2005

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) A distributed receiver system for communicating transmitted reference ultra wideband communications signals, the distributed receiver system comprising:
  - a receiver front end downconverter for receiving comprising a correlator for producing ultra wideband downconverted pulses from the transmitted reference ultra wideband communications signals;
  - a digitizer connected to the receiver front end downconverter for receiving and digitizing the ultra wideband downconverted pulses;
  - a high bandwidth cable connected to the digitizer for receiving the digitized ultra wideband downconverted pulses; and
  - a centralized digital processing module connected to the high bandwidth cable for interpreting the digitized ultra wideband downconverted pulses.
2. (original) The distributed receiver system of Claim 1 further comprising an antenna connected to the receiver front end downconverter for receiving the transmitted reference ultra wideband communications signals.
3. (original) The distributed receiver system of Claim 2 wherein the antenna is configured to be positioned between a ceiling and a drop ceiling.
4. (original) The distributed receiver system of Claim 2 wherein the receiver front end downconverter further comprises a preamplifier connected to the antenna and the correlator for amplifying the received transmitted reference ultra wideband communications signals.
5. (original) The distributed receiver system of Claim 4 wherein the correlator comprises a delay element connected to the preamplifier for delaying the transmitted reference ultra wideband communications signals and a mixing element connected to the preamplifier and the delay element for mixing the delayed transmitted reference ultra wideband communication signals with the transmitted reference ultra wideband communications signals.
6. (original) The distributed receiver system of Claim 5 wherein the receiver front end downconverter further comprises filter for filtering the correlated ultra wideband communications signals.

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7. (original) The distributed receiver system of Claim 1 further comprising a modem connected between the digitizer and the high bandwidth cable for supplying the digitized ultra wideband pulses to the high bandwidth cable.

8. (original) The distributed receiver system of Claim 7 wherein the digitizer further comprises:  
an analog to digital device for digitally converting the ultra wideband pulses; and  
a clock connected to the analog to digital device and the modem for synchronizing operations on the ultra wideband pulses.

9. (original) The distributed receiver system of Claim 8 wherein the analog to digital device further comprises:

a sampler connected to the receiver front end downconverter and the clock for sampling the ultra wideband pulses;  
a quantizer connected to the sampler and the clock for quantizing the samples of the ultra wideband pulses into a predetermined number of quantizer levels; and  
an encoder connected to the quantizer and the clock for encoding the quantized samples of the ultra wideband pulses.

10. (original) The distributed receiver system of Claim 1 wherein the high bandwidth cable comprises a fiber optic cable.

11. (original) The distributed receiver system of Claim 1 wherein the high bandwidth cable comprises a coaxial conductor cable.

12. (original) The distributed receiver system of Claim 1 wherein the centralized digital processing module comprises a plurality of decoder machines.

13. (original) The distributed receiver system of Claim 12 wherein each of said plurality of decoder machines comprises a field programmable gate array.

14. (currently amended) A distributed receiver system for communicating transmitted reference ultra wideband communications signals, the distributed receiver system comprising:

a receiver front end downconverter comprising a correlator for producing downconverted ultra wideband pulses from the transmitted reference ultra wideband communications signals;  
a plurality of digitizers connected to the receiver front end downconverter for receiving and digitizing the downconverted ultra wideband pulses, each of said plurality of digitizers comprising:

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an analog to digital device connected to the receiver front end downconverter for digitally converting the downconverted ultra wideband pulses; and

a clock connected to the analog to digital device for synchronizing operations on the downconverted ultra wideband pulses;

a modem connected to each of the plurality of digitizers and the clock for communicating the digitized downconverted ultra wideband pulses;

a high bandwidth cable connected to the modem for receiving the digitized downconverted ultra wideband pulses; and

a centralized digital processing module connected to the high bandwidth cable for interpreting the digitized downconverted ultra wideband pulses.

15. (original) The distributed receiver system of Claim 14 further comprising an antenna connected to the receiver front end downconverter for receiving the transmitted reference ultra wideband communications signals.

16. (original) The distributed receiver system of Claim 15 wherein said antenna is configured to be positioned between a ceiling and a drop ceiling.

17. (original) The distributed receiver system of Claim 14 wherein the analog to digital device further comprises:

a sampler connected to the receiver front end downconverter and the clock for sampling the ultra wideband pulses;

a quantizer connected to the sampler and the clock for quantizing the samples of the ultra wideband pulses into a predetermined number of quantizer levels; and

an encoder connected to the quantizer and the clock for encoding the quantized samples of the ultra wideband pulses.

18. (original) The distributed receiver system of Claim 14 wherein the high bandwidth cable 180 comprises a fiber optic cable.

19. (original) The distributed receiver system of Claim 14 wherein the high bandwidth cable comprises a coaxial conductor cable.

20. (original) The distributed receiver system of Claim 14 wherein the centralized digital processing module comprises a plurality of decoder machines.

21. (original) The distributed receiver system of Claim 20 wherein each of the plurality of decoder machines 195 comprises a field programmable gate array.

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22. (cancelled) A method for receiving and demodulating spread spectrum signals, the method comprising the steps of:

sensing spread spectrum signals;  
downconverting the sensed spread spectrum signals;  
sampling the downconverted sensed spread spectrum signals;  
quantizing the sampled spread spectrum signals;  
encoding the quantized spread spectrum signals;  
providing the encoded spread spectrum signals to a centralized digital processor; and

processing the transported spread spectrum signals to determine information content contained in the spread spectrum signals.

23. (cancelled) The method of Claim 22 wherein the spread spectrum signals comprise ultra wideband communications signals.

24. (cancelled) The method of Claims 23 wherein the ultra wideband communications signals comprise transmitted reference ultra wideband communications signals.

25. (currently amended) A method for receiving and demodulating transmitted reference ultra wideband communications signals transmitted from at least one ultra wideband transmitter, the method comprising the steps of:

receiving the transmitted reference ultra wideband communications signals using an antenna;  
downconverting the transmitted reference ultra wideband communications signals into downconverted ultra wideband pulses;  
sampling the downconverted ultra wideband pulses;  
quantizing the downconverted ultra wideband pulses into a predetermined number of quantizer levels;  
encoding the downconverted ultra wideband pulses;  
providing the downconverted ultra wideband pulses to a centralized digital processor;  
processing the downconverted ultra wideband pulses using a logic tree to determine information content contained in the transmitted reference ultra wideband communications signals; and  
identifying a particular one of said at least one downconverted ultra wideband transmitter from the step of processing.